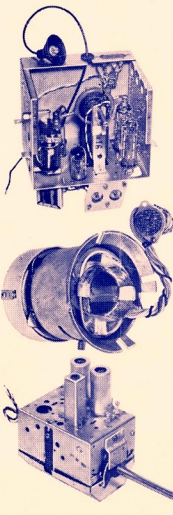


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## EDITORIAL



## PIRACY

We are told that in the bad old days pirates advertised their presence by using a flag embossed with the skull and crossed bones.

Today in the field of Amateur Radio we have pirates who advertise their presence by using bad language, poor operating procedure and discussing questionable subjects.

Unfortunately, some of these traits are not restricted to "pirates," but apply to some licenced Amateurs who think that h.f. and v.h.f. phone is audible only to the person with whom they are in contact.

Stupid practices such as these do a lot of harm to Amateur Radio and all sane thinking Amateurs should co-operate to stamp out such behaviour by pouncing on all transgressors.

Thanks to our higher standards of education we have senior schoolboys with sufficient technical knowledge to construct and operate illicit transmitters for over-the-fence communications in more ways than one. These lads do not appreciate the range of even the smallest transmitter and would be no doubt surprised to hear recordings made of the questionable story they told some schoolmate over their illicit Radio link.

To overcome this menace it appears essential to include in today's school-

ing curriculum some form of instruction which will impress lads with the dangers and repercussions of such behaviour.

The Institute desires to encourage every intelligent youth to take an active interest in Amateur Radio. For two reasons: One—a very selfish one—that of increasing membership of the Institute. The other—the most important reason—that of ensuring a continuity in supply of trained communications operators and technicians to meet any national emergency.

It behoves every member of the Institute to not only take under his wing and encourage the young enthusiast, but also to inculcate in his protege a respect for the Radio Regulations and the rules of society, as well as good sound technical training and operating procedure.

The Institute, like Nelson, expects every man to do his duty by obtaining the necessary licence and observing good operating procedure, thus preserving the prestige of the Amateur Fraternity.

The behaviour of operators of Official Institute Stations must, at all times, be beyond reproach. Upon them rests the prestige of the Institute.

—FEDERAL EXECUTIVE.

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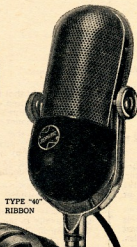
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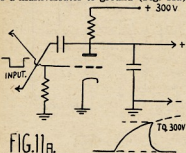
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# PULSE THEORY

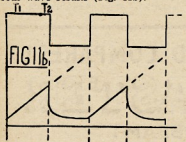
## PART THREE

### MULTIVIBRATORS FOR PRODUCTION OF SAWTOOTH WAVES

Sawtooth waves can be produced by connecting a condenser from one plate of a multivibrator to ground (Fig. 11a).



At time  $t_1$  (Fig. 11b) tube is at cut off and condenser C charges through the load resistor R towards 300 volts. At time  $t_2$  tube again conducts and quickly discharges the condenser to its original low value. The value of R and C determine the slope of the sawtooth. By making C small and R larger than the resistance of the tube, and also if only the lower portion of the exponential curve is used, a nearly linear sawtooth wave results (Fig. 11b).



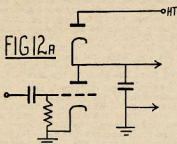
If the time interval between  $t_1$  and  $t_2$  is short enough to allow the charge on the condenser to rise to only a small fraction of the supply voltage, then only a small portion of the exponential curve is used and is therefore approximately linear.

### TO OVERCOME FIRST ORDER CURVATURE

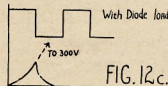
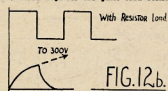
It was explained earlier that the exponential charging curve has first order curvature. To obtain a linear voltage rise from condenser charging it is necessary to eliminate first order curvature.

### Use of Saturated Valves to Overcome First Order Curvature

**Saturated Diode (Fig. 12a):** With low voltage applied to it a diode has high resistance, this resistance decreasing towards the point of saturation. When the charge on C is low, current through the diode is maximum and the diode will be saturated and consequently its resistance will be low and the condenser will charge.

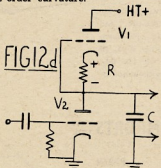


The diode replaces the plate load resistor.



It will therefore be seen that the diode acts as a variable voltage source, causing the voltage to increase as the point of operation moves up the sawtooth, thus reducing first order curvature.

**Saturated Triode (Fig. 12d):** When the charge on C is low, more current is drawn through  $V_1$ . This current flows through R increasing the bias on  $V_1$ . As the current decreases the bias on  $V_1$  is reduced. Thus the tube acts as a high resistance when charging is first commencing and thus slows down the initial charging rate, whilst as the condenser charges up the tube becomes a lower resistance and tends to increase the charging rate, thus counteracting first order curvature.

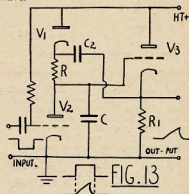


To produce a perfectly linear charging curve  $V_1$  must have infinite gain. The use of a pentode would improve linearity.

BY I. F. BERWICK,\* VK3ALZ

### THE BOOT-STRAP OSCILLATOR (Cathode Feedback)

This circuit (Fig. 13) is used to produce a moderately linear sawtooth wave.



R is the charging resistor for C and also the grid resistor of the cathode follower  $V_3$ . The grid of  $V_2$  is generally held at a potential slightly above earth, therefore there is no voltage across C. A negative gate pulse applied to the grid of  $V_2$  cuts this tube off and the voltage across C begins to rise exponentially to the h.t. voltage. When C begins its charge the current flows into it through the diode and R will tend to be heavier than when C is nearly fully charged. The sawtooth wave applied to the cathode follower grid is transferred to the cathode load resistor  $R_1$  which is coupled to the +ve side of R so that the voltage across R is kept nearly constant. Therefore the current flowing into C is nearly constant and the voltage rise across C nearly linear. When the gate closes, C is shorted by the low resistance of  $V_2$  and thus C discharges ready for the next cycle.

### THE MILLER SWEEP GENERATOR

Introductory note. The formula for Miller Effect of a valve is—

Input capacitance  $C_{in} = C_{pg} (1 + A)$  where  $C_{pg}$  is the plate to grid capacitance of the tube, and A is the amplification factor. Since A is dependent on the operating conditions,  $C_{in}$  is also dependent on these conditions.

This fact is utilised in the Miller sweep tube.

Referring to the circuit (Fig. 14a) it will be seen that  $C_{pg}$  is in parallel with C, the grid coupling condenser. But  $C_{pg}$  is multiplied by a factor  $1 + A$ , i.e. C is paralleled by a condenser  $C_{pg} (1 + A)$ . Now during the course of operation of the sweep cycle, C is charged exponentially through R, therefore  $C_{pg} (1 + A)$  is also charged exponentially through R. This causes  $E_g$  (the grid bias) to vary and thus the value of A to change and hence the condenser  $C_{pg} (1 + A)$  to change.

The effect of this is to counteract first order curvature so that  $E_g$  rises linearly instead of exponentially.

\* Lot 35, Loongana Avenue, Glenroy.

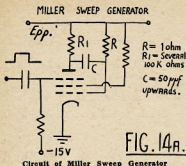


FIG. 14A.

Circuit of Miller Sweep Generator

Initially the grid is at ground due to voltage drop across R equalling h.t. and the suppressor at, say, -15v. (sufficient to cut off plate current), therefore the plate is at + Epp volts and all the cathode current is going to the screen which may be at perhaps 60v. When a +ve gate is applied to the suppressor and is sufficient to raise it to about +5 volts, current flows to the plate and plate voltage falls. Since the plate is coupled to the grid by C, the plate voltage drops only a few volts (about 5) before the grid voltage is reduced and the plate current is reduced to just the few hundred microamps. that the plate load will permit. At the end of this initial step therefore the total cathode current has been greatly reduced, the screen current has been so greatly reduced that a large +ve voltage appears at the screen and a small plate current is flowing.

The drop in grid voltage would tend to make the anode volts rise, but the negative voltage on the grid (i.e. the charge on C) is reduced by exponential charging through R. This rise in grid voltage makes the anode voltage fall still further, thus opposing the discharge of C through R. The effect is to cause the plate voltage to fall linearly until a state of equilibrium is reached. At this point the plate current bottoms against the "knee" of the plate curve. At this point the space current is transferred from the plate to the screen.

This state of equilibrium is stable for the duration of the +ve gate on the suppressor grid. When this is removed the plate rises towards Epp with a speed limited mainly by R C. The departure from linearity in the run-down of the plate during the Miller portion of the operation is less than 0.1% (Fig. 14b).

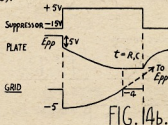


FIG. 14b.

This type of circuit can also be arranged as a flip-flop, giving in addition to the linear sawtooth a gate of very precise and accurately controlled length

which is often used for ranging purposes for producing jitter free delay circuits in which form it is known as the phantastron.

The Phantastron (Fig. 15) is a triggered self-gating sweep generator.

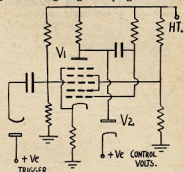


FIG. 15.

Before the trigger pulse is applied the control grid allows a reasonably heavy screen current to flow, but plate current is limited to cut off due to the voltage drop across Rk producing a negative bias on the injector grid which is returned to ground. The circuit is at this stage in a state of equilibrium.

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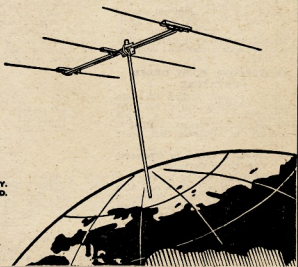
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The application of a +ve trigger pulse to the injector grid immediately causes plate current to flow, resulting in a voltage drop at the plate which is coupled as a negative voltage through C to the control grid, thus limiting screen current and hence reducing the voltage drop across Rk with resultant reduction in the bias on the injector grid.

The tube is now open and tends to settle down in a new stable state. The drop in voltage at the plate, coupled to the grid, would also tend to limit plate current so that it is a small drop equal to the drop on the grid and is stabilised by it.

The control grid will now commence to go less negative as condenser C charges through Rg. Note that the control grid has only to go a few volts +ve in order to return the circuit to the original stable state and the condenser is charging towards a comparatively high voltage. This in itself provides good linearity.

As the control grid goes positive so more plate current will flow, resulting in a lowering plate voltage which tends to cause more linear charging of the condenser C. This transferred to the grid results in a more linear fall of the voltage at the plate. Linearity is thus self-adjusting and of a very high order.

Eventually plate voltage falls to a point where amplification of the valve approaches unity. The grid voltage has risen to a point where increasing screen current is possible. The flop action then occurs. Voltage drop across Rk starts to increase which biases the injector grid, thus limiting plate current. The consequent increase in plate volts is coupled to the grid, increasing screen current and injector bias. The action is cumulative and the circuit quickly returns to the original stable state. The plate current being cut off, the plate volts rise exponentially as C charges through RL.

It can be shown that the duration of the unstable condition, say the length of the gate at the cathode, is directly proportional to the plate voltage at the start. The slope of plate voltage decrease is purely a function of C and Rg.

The voltage to which Ep falls will be the same for any starting voltage, therefore from the diagram it will be seen that the pulse duration will be directly proportional to plate control voltage. Therefore by clamping the plate voltage, diode clamp V2, to some predetermined voltage a gate of a precise length can be produced across the cathode load Rk.

The circuit may be triggered by a -ve trigger pulse to the control grid or a similar pulse to the plate.

In order to obtain better linearity the amplification is frequently increased by increasing the value of the cathode resistor R1 and returning it to a negative voltage. This circuit is an example of a gated sweep generator. Note that the duration of the cycle is dependent on the duration of the gating pulse.

#### PULSE CIRCUITS USING INDUCTANCES

**Ringling Circuit (Fig. 16a):** The valve is normally conducting and a steady plate current flows through the valve and inductance. If a large negative gate pulse is applied to the grid sufficient to cut off plate current, the resonant tank

is shocked into oscillation. At the end of the gate pulse the tube again conducts and a second oscillation is started. However, the conducting tube is equivalent to a damping resistance across the tank and oscillations die away quickly.

The number of oscillations in each train depends on the Q of the tank circuit.

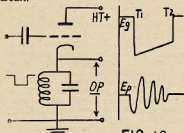


FIG. 16a

**The RLC Peaker (Fig. 16b):** This circuit is very similar to the ringing circuit, the main differences are: (1) C is restricted to stray capacity; (2) A resistance is connected across L to provide nearly critical damping so that a single sharp peak is developed across L at the beginning of the gate and another at the end of the gate. The negative peak developed at the end is smaller due to the additional damping of the tube.

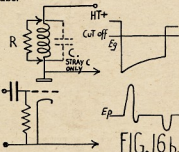


FIG. 16b

The amplitude of the input pulse must be considerably greater than the cut-off because the voltage needed for cut-off is increased during the time the positive pulse is at the plate of the tube.

It will be seen that the pulses developed in the plate circuit are of high peak amplitude. These voltages may be rectified to provide a source of e.h.t. This is common practice in t.v. receivers.

It is also common practice to apply a sawtooth voltage to a ringing circuit and utilise the high peak voltage developed during flyback for a source of e.h.t.

#### V.H.F. INDICATOR RECEIVER

(Continued from Page 3)

T.V.I. Committee Guide (available from the A.R.R.L. free), read "A.R." Oct. '56, "Understanding Television Interference." The manufacturer should complete the t.v. set by supplying the high-pass filter or wave trap free of charge to the serviceman.

The calibration is done before the h.f. part is shielded with a calibrated ab-

sorption type wavemeter ("A.R.," Mar. '56, p. 11 and p. 12) to get, at this stage, the coils near enough to right. The correct calibration is carried out after the receiver is shielded and the antenna is connected.

Use a calibrated grid dip meter which may be corrected with the beat notes heard from the g.d.m. in the BC221 frequency meter. Start with the g.d. meter at 50 Mc. or 30 Mc., checked with the Bendix 221 at 2.5 and 3 Mc. respectively. Follow then with 10 Mc. points in the same way and with 2.5 Mc. points finally. Make curves for each range and from these a calibration table in 1 Mc. steps. Mark t.v. channels and 14 and 21 Mc. harmonics.

The v.h.f. receiver is small enough to be used portable or mobile. With a small power supply, the receiver may be used at a t.v.i. complainant's place.

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# THE TESLA OSCILLATOR\*

## A HIGH STABILITY CIRCUIT WITH LOW HARMONIC OUTPUT

BY DAVID DEACON, G3BCM

AS the origin and theory of the Tesla oscillator circuit, now gaining popularity in Amateur circles as well as commercial circles, is not widely known, a few details together with typical values for Amateur operation may be of general interest.

The oscillator was developed by Tesla, a Czechoslovakian State organisation, from a circuit and a theoretical treatise attributed to J. Vackar. Its overriding features are its stability and low harmonic content, coupled with the fact that its output is claimed to be inherently more constant over a wider band than is practicable with comparable oscillators.

Long-term stability in a production unit, whilst in home-made equipment a figure of  $\pm 0.01$  per cent. is readily attainable without extra precautions; a higher short-term stability of  $\pm 0.001$  per cent. is considered feasible.

### FACTORS AFFECTING STABILITY

The methods of achieving this stability are summarised by Tesla as follows:—

- (1) The tuned circuit must be mechanically and electrically stable and have the highest possible Q factor.
- (2) The impedance to earth between the grid and anode of the valve and either end of the tuned circuit should be as low as possible, but sufficient to permit sustained oscillations.
- (3) The valve should have the highest possible ratio of mutual conductance to the possible changes in its own capacity.
- (4) The oscillator power level should be kept as low as practicable.

The Tesla combines the more desirable elements and properties of several circuits, including the Clapp and the Sallor, from which it has been possible to achieve maximum stability together with constant oscillation amplitude over a broad tuning range of 1:1.5 or more.

It is perhaps worth noting here that in the Clapp oscillator the mutual conductance of the valve should change proportionally to the third power of the frequency tuned, hence this type of oscillator is inclined to stop oscillating at the high frequency end of its tuning range and be over-driven at the low frequency end, for a tuning range of 1:1.3. At the same time, stability is much reduced at the extreme ends of the band covered.

The effects of harmonics in a tunable oscillator have been analysed by Tesla. This analysis shows that there appears in the anode current an abnormal fundamental frequency component, shifted in phase by 90 degrees to the normal anode current and grid driving voltage.

● The Tesla Oscillator has aroused considerable interest in recent years, but so far very little authentic information on its performance and construction has been published. The author of this article has had access to a technical paper submitted by the Tesla organisation to the C.C.I.R. (International Radio Consultative Committee). In addition, he has had considerable experience of the practical use of the circuit which is a feature of the transmitter section of the miniature Amateur station with which he won the 1955 Amateur Constructors' Award at the R.S.G.B. Amateur Radio Exhibition.

This is caused by the monolinear behaviour of the valve, aided by its complex internal resistance and mutual conductance. Elimination of these effects can be achieved by the use of feedback circuits derived from the original Colpitts oscillator, thereby forming an effective low pass filter which attenuates the higher harmonics. The LC ratio is not a contributory factor to the attenuation of the higher harmonics in the Tesla circuit.

Stability can be improved by the use of voltage regulation to keep the amplitude of the oscillations constant so that the changes in the working conditions of the valve can be minimised, and the influence of non-linearity held to a fixed value. Commercially produced oscillators use dust cores, which are moved by a micrometric screw for tuning purposes.

On a typical production model covering 2.5 to 27.0 Mc., in six bands, figures for stability are quoted as follows:—

- (1) A 10 per cent. change in all feed voltages causes a frequency change of 0.0005 per cent.
- (2) A 20 degree change of ambient temperature causes a frequency change of 0.0014 per cent.
- (3) A change of valve (mean square of 20 samples) causes a frequency change of 0.0015 per cent.

The oscillator may be equipped with a reactance modulator for narrow band f.m. (telegraphy or telephony).

### THE CIRCUIT

The basic circuit is shown in Fig. 1 together with that adapted by the writer for use in Amateur transmitters. For Amateur purposes the oscillator can be constructed to operate on the fundamental frequency of all the h.f. bands. The greatest ratio of minimum to maximum tunable frequency occurs on the Top Band, where it is 1:1.11 (28 to 30 Mc., for comparison, is 1:1.07). This is well inside the ratio which assures maximum stability together with constant oscillation amplitude. Because of this it is convenient to use a small variable condenser (Ct) for band spread purposes in lieu of the variable inductance used in the basic Tesla. A split stator with one half connected as for Ct and the other half shunted across C1 is infinitely superior, but its use may be conditioned by practical as well as other considerations.

As a guide for constructors, a self-explanatory table of typical values and parameters for Amateur use is given.

"C effective" in the Table of Values gives the total value of the shunt capacity (maximum/minimum) across L, from which the frequency coverage is determined.

The bands given in the table are those agreed at the Atlantic City Conference, 1947, for Region 1 with the exception of 72-73 Mc. which is for doubling to 144 Mc.

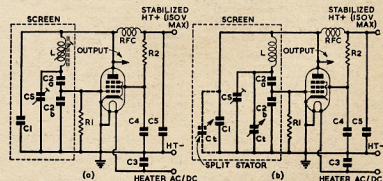


Fig. 1. (a) The basic Tesla oscillator circuit. (b) Tesla oscillator for amateur use. C1, C2a, b, Ct (tuning), Cx (bandsetting), L, see table of values; C3, 4, 5, 0.001 to 0.01  $\mu$ F; R1, 1000 to 10,000 ohms; R2, 25,000 to 75,000 ohms; RFC, 2.5mH. The most suitable valves are the 6AK5, 6EF4, 6BW7, 6FD, 6AM6 and 6FD. Other possibilities include the 2A5, 3C4, 3V4, 6A87, 6AH6, 6AK6, 6AK7, 6AM5, 6G6, 7AC7, 7AD7, 7V7, 18S1, 5654, DL94, EF42, EL91, N77, N144, RK17, SP181, UF42 and Z62. It might also be possible to use a 12AT7 or 6BQ7A, one half as oscillator, the other half as cathode follower.

\* Reprinted from R.S.G.B. "Bulletin", March, 1956.

## CONSTRUCTION

Good quality components should be used. Silver ceramics should be tropicalised or protected against oxidation. The LC circuit should be shielded by a non-magnetic screen, but it is desirable to ensure a separation of at least two diameters between any part of the coil and the screen. The grid resistor R1 should be selected carefully as its value will affect, to some degree, the level of the harmonic content present in the output. The value of the coupling condenser from the anode to the following stage should not exceed 100 pF.

Cathode keying for the purposes of break-in operation is practicable, but the writer prefers a back contact key or relay, which shorts the screen to earth on "space".

A crystal may be substituted for L, and with C1 removed the circuit can then be operated as a Pierce circuit.

Low heater-cathode insulation may cause a poor note, in which case it is necessary to select a good valve from several of the same type and basing by substitution.

## DO NOT FORGET!

The closing date for copy for the January issue is 3rd December.

## AUSTRALIAN V.H.F. RECORDS

Band Mc.	Stations	Date	Miles Rec'd
50	VK5KL-VTACS/KH6	26/8/47	5355 10500
	VK6HK-VRCCG	3/1/55	3928
	VK6WG-VRCCG	3/1/55	3816
	VK9DB-ZLJCS	26/12/53	2804
	VK3IM-VK3CB	30/12/53	2405
	VK7BQ-VK9DB	—	2211
	VK7LZ-VK9DB	—	2211
144	VK5GL-VK6BO	31/12/51	1328 1400
	VK5QR-VK6BO	9/2/52	1238
	VK6M/3-VK7LZ/PF	9/2/52	317
283	VK5MT/5-VK6RO/5	13/4/52	106
	VK3AF/3-VK3AAF/3	31/3/54	63.8
	VK6BO-VK6DW/8	1949	25
578	VK3ANW-VK3AKE	11/12/49	81.6
2300	VK3ANW-VK3XA	18/2/50	9.1 150

The above contacts are best known to date, but what of VKs 2, 4, and 7 contacts? Please send FULL details of your best contacts through your Division to F.E., giving particulars of both stations' locations at the time of contact so that your record may be listed above.

Typical Values for Amateur Use

Band	L µH	Turns 8:1 dia.	Wire S.W.G.	C pF	Single ended (grid) tuning C.						Split Stator tuning C.					
					C1 pF	C2 pF	C3 pF	C4 pF	C5 pF	C6 pF	C1 pF	C2 pF	C3 pF	C4 pF	C5 pF	C6 pF
1.4-2.0 Mc/s	25-0	46-0	30	254 212	565	4000	470	425	230	30	500	5000	480	464	115	25
3.5-3.8 Mc/s	13-0	33-0	28	130 139	285	2600	230	215	125	20	245	2350	235	213	70	12
7.0-7.18 Mc/s	7-0	24-5	24	70.4 73.4	140	1470	130	132-5	11-0	10	134	1250	125	114	7	7
14.0-16.25 Mc/s	3-5	17-0	22	34.8 36.8	68	700	68	62-3	11-0	5	62	600	58	545	7	3
21.0-31.45 Mc/s	2-3	14-0	20	22.8 25-0	44	475	37	43-2	5-5	3	41	350	33	316	5	2
28.0-29.7 Mc/s	1-7	12-0	18	16.6 19-0	31	300	20	27-5	11-5	2	26	210	21	19	7	2
73.0-73.0 Mc/s	0-7	7-7	14	6.71 6-96	8-5	130	—	12-4	1-5	—	7	150	—	14	2	—

\* C3b will be critical at 73 Mc/s and should be made variable 2-8 pF. C4b assumed to be 16 pF and allowed for in value of C2b. C4b assumed to be 16 pF and allowed for in value of C2b.

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# EMERGENCY!

## Amateurs in Ocean Yacht Rescue

It has again been proved that the Radio Amateur is capable of providing a valuable emergency Radio Service.

The rescue of the yacht "Yasme" and the part played by widely scattered Amateurs is not only of interest to radio men but to the public as well.

This is the full report of the events leading up to, and the emergency net which was established between VK9TW/MM on the yacht "Yasme" and VK9FN between 10/9/56 and 17/9/56.

At 2330 on 10/9/56, VS6AE broke in on a three-way QSO between VK9SP, VK9OQ, and VK9FN and passed to the latter the QSP that the yacht "Yasme" (VK9TW/MM) en route from Guadalcanal to Port Moresby had not reported since 1100z on Saturday 9/9/56, and on last sked with KV4AA at 1145z he had reported he was in very bad weather, had lost a mainsail and jib, and was shipping a lot of water. VS6AE requested that as VK9TW was now three hours overdue on sked and had not been heard for 27 hours, that an alert be made, as fears were held for his safety. This message was passed to the Officer in Charge Marine Branch, Captain Foster, at 0045 Eastern Standard on 11/9/56.

VS6AE was again contacted by VK9FN on sked at 1315z on 11/9/56; VS6AE reported that VK9TW/MM was safe and that he had overslept the sked time owing to exhaustion. VK9FN arranged with VS6AE to make a sked for VK9TW/MM and VK9FN at 1130z each day until VK9TW arrived in Port Moresby.

On 15/9/56, VK9FN was not able to keep sked, so arranged with VK9SP to take sked, and to have sked with him at 2200 Eastern on 14110 Kc. Later VK9SP passed the following message to VK9FN from VK9TW: "Have run into heavy seas and gale force winds, position at 1000G, approx. 150 E. longitude 11 10 south latitude, waves 40 ft. high and 'Yasme' taking water, but position satisfactory; ETA Moresby Monday PM."

On 16th, VK9FN was again unable to keep sked with VK9TW, so arranged with VK9SP to again keep sked with yacht and pass message to him at 2200 Eastern. At 2200 Eastern, VK9FN called VK9SP on 14110, but did not contact. VK2AFA broke in to say VK9TW was working VK9SP on 14130 and was in trouble. VS6AE also called and requested VK9FN take over contact with VK9TW, as VK9SP was not in direct communication with Harbour Master. VK9SP being some 350 miles west of Port Moresby.

VK9FN QSY'd to 14130 and copied the following message from VK9TW: "'Yasme' has been unable to take bearings for four days. Could a d.f. bearing be made so as to obtain a fix?" VK4TT offered to assist by enlisting assistance of D.C.A. and Navy in Brisbane. VK4VJ also offered assistance along with VK4NT. VK9FN contacted Captain Hawley, the Harbour Master for Port

Moresby, and passed the message to him. He decided to go to VK9FN's shack and discuss the position with VK9TW. This was done and at 0049 the circuit closed until 0730 Eastern, the date being 17/9/56.

At 0725 VK4TT gave VK9FN a wx report for VK9TW. VK9FN also had obtained a weather report at 0715 from local meteorological office. At 0752, VK9TW called VK9FN and was given the following message re weather: "Special wx report for yacht 'Yasme' issued by Jacobson's Met. Office, Port Moresby, at 0715. S.E. winds approx. 15-25 knots and gusty. Probably heavy S.E. swell, scattered showers, visibility 15 miles reduced to 1 mile during rain. Breaks in cloud  $\frac{1}{2}$  to  $\frac{3}{4}$ . 'Yasme' should be able to take sight for bearings during morning." Skeds were arranged with VK9TW at two hourly intervals, and he reported that he had spent a very bad night with very heavy seas running. At 1000 VK9TW reported he had taken two sights on the sun and gave his position at 338°, and in heavy weather. This information was passed to Captain Hawley.

At 12 noon VK9TW reported his present position was longitude 146° 49' latitude 9° 46.6' approx. 25 miles from Port Moresby in S.W. direction. This was also passed to the Harbour Master, who arranged to be present at VK9FN's shack and speak to VK9TW at 1400 Eastern. At this sked Captain Hawley pointed out that from his present position "Yasme" should steer a course 075° magnetic. The circuit closed at 1425, with another sked at 1600.

At 1600 VK9TW did not reply to call, and after 10 minutes' calling, Captain Hawley was advised. However, VK9TW came up at 1615, and reported he was in distress, heavy seas were breaking over yacht and had stopped his power unit engine, also yacht was leaking and if main engine, which drove pumps, was

to stop, he would sink. This information was passed to Captain Hawley at 1638, who replied he would arrange rescue. At 1715 VK9TW was called, and a message from Captain Hawley passed, saying: "Air-sea rescue operations were in hand."

At 1755 O.I.C. air-sea rescue advised VK9FN by telephone that CA61 would depart Moresby at 1800 and head for rendezvous at last known position of "Yasme." VK9TW was called and message passed. At 1800 Eastern, ZL2GX asked for information re VK9TW for QSP to KV4AA. He was informed of the position and asked to keep VK9TW's sked at 1100z with KV4AA. At 1815 Moresby Air Radio rang VK9FN and asked if VK9TW could contact them on 3.4 Mc. Message was passed to VK9TW. However, he replied he could not transmit on 3 Mc., and requested Aeradio pass the message through VK9FN, who put a receiver up on 3.4 Mc., to copy both D.C.A. and CA61.

At 1940 VK9DB suggested that Aeradio contact VK9TW direct, VK9TW listening on 3 Mc. for D.C.A. and transmitting on 14130 Kc. This was passed to VK9TW, who listened for D.C.A., but did not hear them. D.C.A. also listened for VK9TW on 14130, but could not hear him. VK9DB also called VK9TW, but VK9TW reported to VK9FN he could not copy VK9DB, and again requested that traffic be handled by VK9FN.

At 1945 CA61 called Aeradio and requested that "Yasme" be asked to fire a flare at 2000. This message was passed to VK9FN, who relayed it to VK9TW. VK9TW requested that D.C.A. be asked that CA61 fire first flare, to give "Yasme" a chance to sight it, as "Yasme" only carried three flare cartridges. This was agreed to, and at 1958 CA61 called advising flares going up. At 2002 VK9TW called advising flare sighted 5° N.W. of him. This message was passed to D.C.A. and CA61.

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2005, CA61 reported that mast head light of "Yasme" sighted.

2010, VK9FN reported all details to Captain Hawley, who passed congratulations on good navigation.

2013, VK9TW reported he could see lights on horizon, distance about 1 mile.

2030, CA61 called asking for instructions as to what was to be done about "Yasme" as they had no tow facilities. CA61 was advised that "Yasme" had 60 fathoms of rope ready for tow.

2038, CA61 reported he was in position.

2043, VK9TW reported tow rope passed to CA61.

2051, VK9TW reported tow commenced and he was closing, as he could not operate and handle tiller. VK9FN passed this to D.C.A.

During the time mentioned above, i.e. from 1615 hours, the following stations were asked to act as guardians of the frequency 14130 Kc., keeping it clear of all QRM: VKs 3KV, 4NT, 4VJ, 4TT, 3JK, 9SP, 2PG, 4PR, 3FH, 2L2GX. These chaps did a splendid job, and en-

listed the aid of DX stations to assist, which they did. VK9FN advised position each half hour, as SA61 reported on the hour and at half past.

Finally at 0030, VK9FN closed on 14 Mc., after arranging skeds for 0730 with several stations to report the position. However, an all-night watch was kept by VK9FN on 3.4 Mc. and reports from CA61 logged until 0330, when no report came through. VK9FN phoned D.C.A. at 0340, to learn that as CA61 was within v.h.f. range, they had called on 121 Mc. D.C.A. gave VK9FN the 0330 report, and arranged for them to phone should any difficulties arise. VK9FN then slept until 0530, at which time he called D.C.A. per telephone and was advised that CA61, with "Yasme" in tow, was just entering the passage into Moresby.

At 0558 D.C.A. reported yacht tow had broken just inside the harbour, and that "Yasme" was just entering the town reach of the bay under own power. VK9FN then drove into Port Moresby and was present when VK9TW anchored off customs wharf. After exchanging

greetings and congratulations across the water with Danny VK9FN returned home and called VKs 4TT, 4VJ and 4NT and gave them a detailed report of rescue operations.

At 0830 VK9FN reported per telephone to the local Radio Inspector, details of operations during the evening.

Danny VK9TW was invited by Frank VK9FN home for kai (dinner to you), after which a very enjoyable evening was had listening to a description of his travels from England to Port Moresby. DX worked, and other experiences.

Frank VK9FN expresses his thanks to all those Amateurs who kept the channel clear of QRM and assisted by obtaining information from Met. and Air Radio in Brisbane, especially VKs 4TT, 4VJ and 4PR. Without the help of all these, the success of the operation would have been very hard. "I consider the W.I.A. members have again proved we can handle an emergency operation with true professional dignity, and are ever willing to do so when the need arises," concluded Frank VK9FN.

## ANOTHER UNIQUE OPPORTUNITY FOR W.I.A. MEMBERS ONLY

- ★ The availability of Transistorised Hearing Aids has resulted in many deafened people changing their good Valve-type Aids.
- ★ We have about 100 very high quality Valve Hearing Aids to offer to W.I.A. Members exclusively. The majority are in perfect order, some practically new, several cost over £90 each. World famous makes include Western Electric, Sonotone, Belclere, Crystalaid, Multitone, etc., etc. As combined Pre-Amplifiers and Microphone in cases, or as Field Day Receivers, Pocket Radios, Monitors, these units are ideal. There are dozens of other uses, if not for the quality components.
- ★ Each unit is complete as hearing aid with faults if any. For W.I.A. Members only at—

**FIFTY SHILLINGS EACH** post paid.

- ★ **"PICK-A-BOX"** The boxes of miniature components which included Crystal Inserts, Valves, Receivers, Condensers, Miniature Volume Controls, Switches, etc., etc., which we announced recently at £2/0/0 per box, sold out quickly. We have a few more at the same price. Every box is worth four times the £2 asked.
- ★ **TRANSISTORS** A few L.F. Transistors by Raytheon, U.S.A., very slightly sub-standard, but perfect performers. Tested before dispatch. Super price, 20/- each. Usually £4/10/- each.
- ★ **POCKET RADIO CASES** Twenty only really beautiful cases in brilliant Maroon Perspex, with plated fittings. Brand new and un-cut. Size: 5 x 2½ x 1½ inches. Nicely moulded. Offered at £2 each. Tuning dial free to suit each case. Also for the above, suitable tuning condenser 0.0005 uF. at 5/6 each.

SEND CASH WITH ORDER or by C.O.D. (costs extra)

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Telephones: B 7277 or B 9289

Telegrams: "Crystalaid," Brisbane

## Wide-Range Tone Control in Amateur Phone\*

## Applying "Hi-Fi" Circuitry to Preamplifier Design

BY DON MARTIN, W8QBN

**D**URING the construction of a "hi-fi" amplifier, I happened on what seems to me like a helpful device for many phone men. The need came about because my high-quality microphone didn't have enough output to drive my Viking II, to 100 per cent modulation. That is not good, and some sort of preamplifier was clearly indicated.

Using the hi-fi techniques, this pre-amplifier is different than the usual in that it incorporates three independent response controls: lows, highs, and middle range. In the flat position it can be considered a high-fidelity unit, since it is flat within 0.2 db. from 20 to 20,000 cycles. This, of course, has no place in Amateur Radio and is not the way it is used. By variation of the three controls it is possible to boost the usable frequencies and attenuate the undesirable ones over a range of 40 db. without introducing any harmonic distortion and permits adjusting the rig for maximum communications "punch."

I happen to have a very high voice. I cut the highs and the very lows and boost the mid-range. It is really very effective, and a nice feature is that anyone can find the shortcomings in his voice (and microphone) and adjust the preamp to compensate.

## THE CIRCUIT

The circuit of the preamplifier is shown in Fig. 1. Four inputs were used in this unit because I hate to get caught with microphones or other audio sources with different types of plugs on their cables, and the four inputs have different types of jacks. The selectable input isn't necessary, of course, and a more standardised station could eliminate it and save the price of three jacks, three capacitors and switch S1.

Both sections of a 12AT7 are used in the preamp. Varying the position of the arm of the 1 megohm "mid-range" control changes the response in the 500 to 5000 cycle range. The "lows" control varies the gain in the 20 to 500 cycle range, and the "highs" control takes care of the frequencies above 5000 cycles.

By changing the relative settings of the controls, it is possible to get practically any kind of low, middle or high frequency emphasis or attenuation. Once established for a given microphone and voice, the volume level is established by the setting of the volume control in the output circuit. At W8QUN the highs and lows controls are usually set at minimum and the middle range control is set at about the mid point. This gives a nice "communications" response in the 500 to 3000 cycle range. The volume control must be set low enough to avoid overdriving a subsequent audio stage in the transmitter.

● Adding a few tone-control circuits to your audio amplifier or preamp. will give you a chance to compensate for deficiencies in microphone response and also to utilise your voice for maximum communication effectiveness. The one-tube preamplifier presented here can handle the job easily, since it offers a wide range of control.

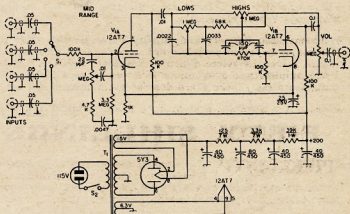
## CONSTRUCTION

While the construction ideas of others will undoubtedly differ from mine, it is suggested that the input and output leads be shielded to avoid the possibility of oscillation or excessive hum. A common ground bus was used instead of a chassis return, and the chassis connections in Fig. 1 represent connections to this ground bus, except at the input and output jacks. In the two versions I have built, no trouble with hum or oscillation

was encountered, and the signal-to-noise ratio is excellent. You will notice from Fig. 1 that there is plenty of power supply filtering, and this is absolutely necessary in any equipment that will pass 60 cycles and lower.

## USE

A final word of warning is in order. Anyone who builds this or a similar preamplifier should not use it on the air set for maximum frequency response. Emphasising the higher frequencies is not a considerate way to operate in our crowded bands, even if you do have a yen to sound less masculine than normal. From my personal standpoint, the unit has several purposes. The primary one is to **limit** the transmitted bandwidth. It is also of some aid to the older man who sounds too young, or the younger operator who sounds too old. With judicious variation of the tone controls, they can sound like W2KR, W8SCS, and the few others who are gifted with wonderful communications voices!



## BOOK REVIEW

**THE ARGONAUT A.M./F.M.  
M.W./V.H.F. TUNER-RECEIVER**

This book presents an unusual solution to the problem of v.h.f./m.w. receiver design. Most of the contemporary designs have complicated switching to accomplish the change over. The Argonaut, however, uses only a simple three-pole switch.

The book has several very clear illustrations, a chassis layout plan and full circuit and wiring diagrams. The text covers all constructional details fully. There is also a comprehensive chapter on alignment and trouble shooting.

This is a book no hi-fi enthusiast can afford to be without.  
Our copy direct from Data Publications Ltd., 57 Maidia Vale, London, W.9.  
Price 2/- stg.

## THE AMATEUR'S HIT PARADE

"When I'm calling CQ-00,00,00—00,00."

"I'm gonna hang my antenna on mother's washing line."

"How much is that crystal in the window?"

"Ten red bottles, hanging on the rig."

"The old carbon mike, she ain't what she used to be!"

"Go fly a kite and tie your antenna to its tail."

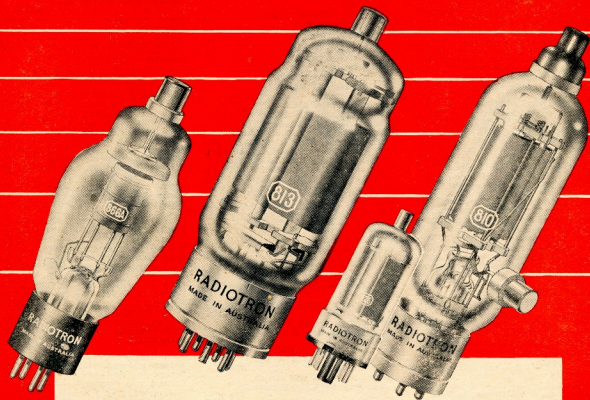
"QRMary, QRMary, it's a grand old game."

"Yes, we have no harmonics!"

t nobody

\* Reprinted from "QST", July, 1956.

# **RADIOTRON POWER VALVES**



Today's high standards of radio performance are dependant upon the use of first quality components.

Radiotron valves are manufactured to exacting standards which ensure you of the ultimate in performance at all times.

Be sure of the quality and consistency of your signals by using Radiotron Power Valves.

**Important:** When ordering valves, be sure to mention "Amateur Radio" so that priority can be given to your order.



# **RADIOTRON**

**AMALGAMATED WIRELESS VALVE CO. PTY. LTD.**

ELECTRIC DEPOSITED  
COPPER FOIL

The Royal Mint Refinery is pleased to announce that supplies of electric deposited copper foil are now available in a combination of thicknesses and widths hitherto unobtainable in this country. The range of widths quoted below makes the foil suitable for the production of copper clad laminate which is required for the manufacture of etched foil printed circuits.

During the research period considerable attention has been given to provide foil which is bright and polished on one side and which has a matt surface on the other. The matt surface ensures a good bond between the copper and the laminate, and from this should arise new opportunities in the use of copper clad materials in the fields of radio, telecommunications and switchgear.

The physical properties of the foil are in most respects similar to that of hard rolled copper sheet and one of its great advantages lies in the fact that it is supplied in continuous length coils. The bulk of the foil at present being supplied is for the printed circuit industry, and the following is a general specification for this type of foil:—

Purity: Minimum 99.9%.  
Conductivity: Minimum 95% (I.A.C.S.)  
Width: Up to 42½" = 1079.5 mm.  
51" = 1295 mm. foil became available as from July, 1956.  
Thickness: Generally any thickness between 0.001" and 0.004" measured by weight.

For example:  
Thickness:  
nominal inch 0.001" 0.00135"  
nominal mm. 0.025 mm. 0.035 mm.  
Ounces per sq. foot 0.735 oz. 1 oz.  
Grams per sq. metre 224 gr. 305 gr.  
Thickness:  
nominal inch 0.0027" 0.004"  
nominal mm. 0.070 mm. 0.100 mm.  
Ounces per sq. foot 2 oz. 2.94 oz.  
Grams per sq. metre 610 gr. 896 gr.

Accuracy of gauge to close limits is maintained across the width of the foil.

Despatch: Coiled on stiff compressed paper mandrels 3" (76.2 mm.) inside diameter, the maximum coil weight for the widest material being 100 lbs. (45.4 kg.).

Electro deposited copper foil could, however, be made in narrower widths and in even thinner gauges than those specified above, the minimum thickness being 0.00012" = 0.003 mm.

The foil has been successfully bonded on plastic laminate both rigid and flexible; this suggests that it is equally suitable for bonding on paper, fabric or timber either as a surface cladding or a sandwich layer.

The Sole Australian Agents are Mica and Insulating Supplies Co. Pty. Ltd.

EL34—Output Pentode

Physical Specifications—

Cathode: Coated unipotential.  
Base: Dwarf shell Octal 8-pin with metal retaining ring.

Bulb: T10  
Mounting Position: Any.

Basing Connections—

- Pin 1—Grid No. 3.
- Pin 2—Heater.
- Pin 3—Plate.
- Pin 4—Grid No. 2.
- Pin 5—Grid No. 1.
- Pin 6—No connection.
- Pin 7—Heater.
- Pin 8—Cathode.

General Electrical Data—

Heater voltage: 6.3 volts.  
Heater current: 1.5 amp.  
Direct Interelectrode Capacitances—  
Grid 1 to all other electrodes, 15.5 pF.  
Plate to all other electrodes, 10.2 pF.  
Between Grid 1 and Plate, 1.0 pF.  
Between Grid 1 and Heater, 1.0 pF.  
Between Heater and Cathode, 10 pF.

MAXIMUM RATINGS

Plate volt. (without current) 2000 V.  
Plate voltage ..... 800 V.  
Plate dissipation (without signal) ..... 25 W.  
Plate dissipation (with signal) 27.5 W.  
Screen grid voltage (without current) ..... 800 V.  
Screen grid voltage ..... 425 V.  
Screen grid dissipation (without input signal) ..... 6 W.  
Screen grid dissipation (at max. power output) ..... 12 W.  
Cathode current ..... 135 Ma.  
Control grid voltage at control grid current = + 0.3 amp. .... -1.3 V.  
Maximum control grid circuit resistance for Class A and AB conditions ..... 700 K.  
Maximum control grid circuit resistance for Class B condition ..... 500 K.  
External resistance between heater and cathode ..... 20 K.  
Voltage between heater and cathode ..... 50 V.

CLASS A AMPLIFIER

Plate/Screen grid supply voltage ..... 265 265 V.  
Plate voltage ..... 250 250 V.  
Screen grid resistor ..... 2000 0 O.  
Suppressor grid volt. .... 0 0 V.  
Control grid voltage ..... -14.5 -13.5 V.  
Plate current ..... 67 100 Ma.  
Screen grid current ..... 9.3 14 Ma.  
Mutual conductance (micromhos) 9000 11000

Amplification factor of screen grid with respect to control grid 11 11  
Plate resistance ..... 18000 15000 O.  
Load resistance ..... 3250 2000 O.  
Input voltage (r.m.s.) ..... 10 9.3 V.  
Power output ..... 8 12 W.  
Distortion ..... 10% 10%  
Required input volts for 50 milliwatts output (r.m.s.) ..... 0.65 0.5 V.

CLASS AB AMPLIFIER

Plate and screen grid supply voltage ..... 375 V.  
Screen grid resistor ..... 500 O.  
Suppressor grid voltage ..... 0 V.  
Cathode resistor ..... 132 O.  
Load resistance plate to plate ..... 4000 O.

Plate current (zero sig.) ..... 2 x 75 Ma.  
Plate current (max. sig.) ..... 2 x 90 Ma.  
Screen grid current (zero signal) ..... 2 x 10 Ma.  
Screen grid current (max. signal) ..... 2 x 22 Ma.  
Input voltage, grid to grid (r.m.s.) ..... 2 x 20.5 V.  
Power output ..... 37 W.  
Distortion ..... 3.5%  
\* Under maximum signal conditions, voltage drop across each section of output transformer, approximately 25 volts.  
† Common to both valves.

CLASS B AMPLIFIER

Plate supply voltage\* 350 375 V.  
Screen grid sup. volt. .... 350 375 V.  
Screen grid resistor ..... 500 500 O.  
Control grid voltage ..... -36 -36 V.  
Suppressor grid volt. .... 0 0 V.  
Load resistance pl.-pl. .... 5000 4000 O.  
Plate cur. (zero sig.) ..... 2x20 2x20 Ma.  
Plate cur. (max. sig.) ..... 2x79 2x99 Ma.  
Screen cur. (zero sig.) ..... 2x2.4 2x2.4 Ma.  
Screen cur. (max. sig.) ..... 2x26 2x26 Ma.  
Input signal, grid to grid (r.m.s.) ..... 2x25 2x25 V.  
Power output ..... 37 46 W.  
Distortion ..... 5% 4.5%  
Plate supply voltage\* 400 425 V.  
Screen grid sup. volt. .... 400 425 V.  
Screen grid resistor ..... 800 800 O.  
Control grid voltage ..... -42 -42 V.  
Suppressor grid volt. .... 0 0 V.  
Load resistance pl.-pl. .... 5000 4400 O.  
Plate cur. (zero sig.) ..... 2x20 2x20 Ma.  
Plate cur. (max. sig.) ..... 2x91 2x106 Ma.  
Screen cur. (zero sig.) ..... 2x2.4 2x2.4 Ma.  
Screen cur. (max. sig.) ..... 2x27½ 2x28 Ma.  
Input signal, grid to grid (r.m.s.) ..... 2x29½ 2x29½ V.  
Power output ..... 48 58 W.  
Distortion ..... 5.0% 4.5%

Plate supply voltage\* 750 800 V.  
Screen grid sup. volt. .... 750 400 V.  
Screen grid resistor ..... 800 750 O.  
Control grid voltage ..... -41 -41 V.  
Suppressor grid volt. .... 0 0 V.  
Load resistance pl.-pl. .... 11000 11000 O.  
Plate cur. (zero sig.) ..... 2x20 2x20 Ma.  
Plate cur. (max. sig.) ..... 2x86 2x98 Ma.  
Screen cur. (zero sig.) ..... 2x2.0 2x2.0 Ma.  
Screen cur. (max. sig.) ..... 2x26 2x27½ Ma.  
Input signal, grid to grid (r.m.s.) ..... 2x28½ 2x28½ V.  
Power output ..... 90 108 W.  
Distortion ..... 7% 6%  
\* Under maximum signal conditions, voltage drop across each section of output transformer, approximately 25 volts.  
† Common to both valves.

TRIODE CONNECTED

(Screen grid connected to plate)

Class A

Plate supply voltage ..... 375 V.  
Suppressor grid voltage ..... 0 V.  
Cathode resistor ..... 370 O.  
Plate current ..... 70 Ma.  
Load resistance ..... 3000 O.  
Input voltage (r.m.s.) ..... 19.2 V.  
Power output ..... 6 W.  
Distortion ..... 9%

Class AB

Plate supply voltage ..... 400 V.  
Suppressor grid voltage ..... 0 V.  
Cathode resistor ..... 220 O.  
Plate current (zero signal) ..... 2x65 Ma.  
Plate current (max. signal) ..... 2x71 Ma.  
Load resistance plate to plate ..... 5000 O.  
Input signal grid to grid (r.m.s.) ..... 2x22 V.  
Power output ..... 16.5 W.  
Distortion ..... 3%

# Ross Hull Memorial V.H.F. Contest, 1956-57

## RULES

1. The Contest will take place in the 56-60 Mc., 144-148 Mc., and 288-298 Mc. bands, and will commence at 0001 hours E.A.S.T. on 1st December, 1956, and will continue until 2359 hours E.A.S.T., 31st January, 1957. Interstate, Intrastate and Overseas contacts are allowed. Cross-band working is not allowed. L.A.O.C.P. licensees are encouraged to work on the 144 Mc. and 288 Mc. bands.

2. Only one contact on each band with any one station, per twenty-four hours, commencing midnight E.A.S.T., to count for scoring purposes.

3. Exchange of a serial number will constitute a contact.

4. The serial number of five or six figures will be made up of the RS (telephony) or RST (telegraphy) report plus three figures which may commence with any number between 001 and 100 for the first contact and which must increase in value by one for each successive contact, e.g. if the number chosen for the first contact is 050, then the number for the second contact must be 051, for the third 052, and so on. If any contestant reaches 999, then he must start again 001, and continue as above.

5. Scoring.—Points allotted, apply to each band worked.

Interstate and Oversea Contacts: 5 points for the first contact with any particular station, 4 points for the second, and so on to the fifth contact for 1 point, after which no more scoring

contacts with that particular station can be made on that band, for the duration of the Contest; e.g. VK5ABC may work VK2XYZ five times on each of the four bands, for a total of 20 contacts.

Intrastate Contacts (for VK Call Areas only).

(i) Five points for the first contact with any particular station, four points for the second and so on to the fifth contact for one point, after which no more scoring contacts with that particular station can be made on that band for the duration of the Contest.

(ii) Stations located beyond a radius of 100 miles of any Capital City (Federal Capital excepted) will double their score for ALL contacts; e.g. VK3ABC (Mildura) works VK3XYZ (Melbourne) for the first contact: VK3ABC scores 10 points, while VK3XYZ scores 5 points. If VK3ABC works VK3PQI at Red Cliffs, both score 10 points for the first contact.

6. Logs shall contain the following information: Date, time (E.A.S.T.), band, call of station contacted, serial number sent, serial number received, points claimed for the contact, and at the foot of each page the total points claimed; and at the end, the grand total.

Logs shall be signed by the competitor, together with a declaration to the effect that the station was operated strictly in accordance with the rules, and spirit of the Contest. The decision of the Federal Contest Committee shall be final and binding.

Logs must be received by the Federal Contest Committee, Box 1234K, G.P.O., Adelaide, South Australia, not later than 1st March, 1957.

7. Entries will be accepted from all States of the Commonwealth and Districts of New Zealand. Check logs from other countries would be appreciated by the Contest Committee.

8. The regulations governing the control of Amateur Radio in each contestant's country must be observed.

9. Awards: (a) For the purpose of Awards, Northern Territory will count as a separate call area.

(b) The outright winner of the Contest within the Commonwealth of Australia will receive an appropriately inscribed Certificate.

The top financial member of the W.I.A. will hold the Ross A. Hull Memorial Trophy for a period, and in addition will receive an appropriately inscribed photograph of the Trophy.

(c) The highest scorer in each call area in Australia and New Zealand will be awarded a Certificate. The Federal Contest Committee reserves the right to make any additional Awards.

(d) A Certificate will be awarded to the L.A.O.C.P. licensee who gains the highest score in each call area. (Operation must be confined to the 144 Mc. and 288 Mc. bands with A3 emission, to conform with the Departmental Regulations.)

10. The decision of the Federal Contest Committee will be final and binding upon all matters pertaining to this Contest.

## AMATEUR CALL SIGNS

FOR MONTH OF AUGUST, 1956

### NEW CALL SIGNS

VK— New South Wales  
2AQ—N. MacLeod, 41 Kangaroo St., Manly.  
3CC—B. M. Carter, C. 254, Kempsey.  
3CN—R. C. Prout, 9 Agnes St., Mayfield, Newcastle.  
3FF—G. V. McLeod, 44 Monro Avenue, Kirra-  
ra.  
3GC—S. D. Glyde, Private Bag, Bowraville.  
3HY—J. L. Rath, 80/82 Flora St., Sutherland.  
3IK—B. H. Burton, C. (Rev.), The Manse, Wee  
Waa St., Walgett.  
3OZ—W. E. Dixon, 20 Thyra Rd., Palm Beach.  
3AAF—A. J. Fisher, 36 Carriers Lane, Fairy  
Meadow, Wollongong.  
3AIA—M. Eagles (Mrs.), 41 Cotswold Rd.,  
Strathfield.  
3AKH—G. F. E. Knox, 18 Brentwood Ave.,  
Turramurra.  
3ZAO—R. F. Ruff, 68 Toowoomba Bay Rd., Long  
Jetty.  
3ZBF—J. K. Doherty, 27 Harbour St., Mosman.  
3ZBJ—G. L. C. Jenkins, Sgts. Mess, No. B.F.  
T.S., R.A.A.F., Uranquinty.  
3ZDR—D. Barter, 28 Turf St., Blacksmiths.

Queensland  
4ER—R. E. Lees, Box 18, P.O. Theodore.  
4GW—H. V. Varnes, 3 Leeson St., West Bunda-  
berg.  
4JT—J. L. Taylor, 8 Heathwithe St., Tarragindi.  
4MR—M. E. Russell, 45 Apollo Rd., Dulimbis.  
South Australia  
5ZAU—J. G. Rodger, 38 Lynnington St., Tumso-  
re.

Tasmania  
7AD—C. R. Pearce, 39 Beach St., Belliverie.  
7SK—M. D. L. Sidobottom, Trannmere Rd.,  
Howrah.

Territory of Papua and New Guinea  
9KC—W. Bock, Pandora Cres., Port Moresby.

## CHANGES OF ADDRESS

VK— New South Wales  
2HO—H. J. Hart, 8 Killeston St., East St. Ives.  
2IW—N. W. Skelander, 19 Franklin Rd., Orange.  
2MJ—A. J. T. Crisp, 51a Washington St., Bexley.  
2MV—C. Welsh, Flat 410K, Housing Settlement,  
Horne Bay.  
2OF—J. W. Francis, Post Office, Euchareena.  
2SW—S. Ward, 67 Marco Ave., Revesby.  
2TS—T. C. McEwan, S.S. "Iron Wyndham" C/o  
Broken Hill Pty. Co. Ltd., Newcastle.  
2KU—W. L. Nye, 10 La Perouse St., Fairlight.  
2WX—R. M. P. Gray, 50 West Cres., Hurstville.  
2ABX—C. C. Gibson, 122 Russell St., New  
Lambton.  
2ACB—A. C. Bell, 338 Oxford St., Paddington.  
2AJH—J. E. Hills, 18 Coleridge Rd., Cymbaly.  
2AFJ—J. Weaver, 24 Corderland St., Goulburn.

Victoria  
3EL—S. D. Smith, 36 Essex St., Pascoe Vale.  
3HZ—E. M. Clegg, 28 Princes St., Shepparton.  
3HQ—K. J. Duff, 10 Palmerston St., Camberwell.  
3SU—S. G. Edwards, 270 Beaconsfield Pde.,  
Middle Park.  
3VE—V. W. Harrison, Rossville Ave., Sorrento.  
3ADD—H. L. Daniell, 64 Park St., Hamilton.  
3AEC—E. W. Caddy, 22 Marony St., Balaclava.  
3AGV—J. E. Vincent, Queen St., Elmhurst.  
3AIW—L. H. Waller, 46 Peppercorn Ave., Sydnal.  
3AJV—K. G. Avery, "Froggall", 54 Mont Albert  
Rd., Canterbury.  
3AKC—J. Griffiths, 16 Newton St., Sheppar-  
ton.  
3ALT—L. E. Wright, Lot 28 Vannon Drive,  
Ashwood.  
3AVN—T. F. Webb, 54 Forster St., Norlane.  
3ZBZ—A. W. Buesst, 238 Domain Rd., South  
Yarra.  
3ZCA—R. J. Skevington, 44 Northcote Ave.,  
Caulfield.  
3ZCG—W. G. Francis, 13 Mirboo St., East New-  
borough.  
Queensland  
4CX—J. E. D. McDowell, 44 Fisher St., Glad-  
stone.  
4KW—W. E. C. Fraser, 66 Brae St., Rock-  
hampton.

4NI—A. H. Nicholls, 206 Newmarket Rd., Wil-  
ston, Brisbane.

South Australia  
5RZ—O. L. Nestrone, 11 Haigh St., Broadview.  
5XK—A. J. Hewitt, Main St., Lucindale.  
5ZX—A. H. Heath, 3 Rutland Ave., Brighton.

Western Australia  
6RH—R. A. Hallamore, 70 Stirling Highway,  
Nedlands.  
6ZAJ—B. W. A. Jacobs, 8 St Albans Ave.,  
Highgate.

Tasmania  
7SD—D. M. Smith, 87 Bass St., Warrane.  
7TW—R. A. Milledge, 60 Derwentwater Ave.,  
Sandy Bay.  
Territory of Papua and New Guinea  
9AH—A. J. Humphries, District Office, Port  
Moresby.  
9AS—J. A. Whittaker, C/o. R.T.C., Wewak.

## CANCELLED CALL SIGNS

VK— New South Wales  
2AFO—T. T. Toakley.  
Victoria  
3ABQ—M. Howden.  
Queensland  
4KC—W. Bock. Now VK9KC.  
Tasmania  
7LX—K. J. Briggs. Transferred to Brisbane.

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VK— New South Wales  
2AHQ—T. H. E. Quilty.  
2ALK—T. A. H. Wigzell.  
2AVL—C. F. Yarras.  
2ZAL—T. A. R. Hennessy.  
Victoria  
3IE—T. L. A. Seedsman.  
Queensland  
4MX—T. J. R. Marshall.  
South Australia  
5EN—T. A. R. E. Nitschke.  
5MO—T. E. P. McGrath.

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687A	Vibrator Power Unit (6 volt) 30 18 6	
688	Loudspeaker, Diecast (Black)	7 0 4
689	Morse Key (Semi-Automatic)	9 0 8
697	Loudspeaker, Diecast (Brown)	7 0 4
774	Receiver Mounting Blocks (Black)	Pair 1 5 6
811	Loudspeaker, Diecast (Polychromatic Grey)	7 0 4
812	Receiver Mounting Blocks (Polychromatic Grey)	Pair 1 5 6

## TRANSMITTING AND NEUTRALISING CONDENSERS

481*	Midget Neutralising Condenser, 1.5 to 4 pF.	8 0
815	Single Section 60 pF., one end plate, 2 in. square	1 13 11
816	Single Section, 175 pF.	1 17 1
817	Single Section 250 pF., one end plate, 2 in. square	2 2 5
831	Split Stator 25 x 25 pF., two end plates, 2 1/2 in. square	3 1 6
832	Split Stator 50 x 50 pF., two end plates, 2 1/2 in. square	3 14 2
833	Split Stator 100 x 100 pF., two end plates, 2 1/2 in. square	5 11 3
834	Differential 100 x 100 pF., two end plates, 2 1/2 in. square	5 9 1
835	Single Section 230 pF., two end plates, 2 1/2 in. square	3 14 2
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580	Single Section 12.5 pF. (screw-driver adjustment)	15 6
581	Single Section 60 pF.	1 0 0
582	Single Section 60 pF.	1 0 0
583	Split Stator 25 x 25 pF.	18 4
584	Butterfly 34 x 34 pF.	1 5 6
585	Single Section 100 pF.	1 6 8
586	Single Section 140 pF.	1 6 8
587	Butterfly 15 x 15 pF.	1 2 2
588	Single Section 27.5 pF.	17 9
589	Single Section 54 pF.	1 0 0
719	Differential 25 x 25 pF.	18 4
738	Single Section 100 pF.	1 16 7
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551	Butterfly 25 x 25 pF., 90° rotation	1 10 0
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593	Instrument Knob, 3/4 in. dia.	2 0 0
598	Full Vision Dial	2 14 5
784*	Skirt Knob, 3/4 in. dia.	6 1
785*	Instrument Knob, 1 1/2 in. dia.	2 0
786*	Skirt Knob, 3/4 in. dia.	2 11
841*	Pointer Knob, 1 1/4 in. long	1 10
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843	Slow Motion Dial, 4 in. dia.	1 16 2
844*	Knob and Dial, 2 in. dia.	6 1
845*	Knob, 1 1/4 in. long	7 2

\*The lines thus marked are to become obsolete, but are available as long as stocks last.

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Cat. No.	Description	Price, each
872*	Miniature Slow Motion Dial, 1 1/4 in. dia.	1 13 8
875*	Knob with skirt, 1 1/4 in. over-dia.	10 6
877	Wing Knob, 1 1/4 in. across rib	5 1
878	Miniature Skirt Knob, 5/32 in. dia.	2 9
1027	Pointer Knob, 2-7/32 in. long	2 0
1076*	Instrument Knob, 2 1/2 in. dia.	7 3
1089*	Instrument Knob, 1 1/4 in. dia.	3 10
2416*	Skirt Knob, overall dia. 1 1/4 in.	3 10

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537*	Coil Former, plain (6-pin)	5 3
538*	Coil Former, threaded (6-pin)	5 7
646*	Former (ribbed, 1 in.)	3 1
647*	Small Coil Former, plain	2 3
648*	Small Coil Former, threaded	4 1
775*	Coil Stand (4-pin)	6 2
783*	Coil Stand (3-pin)	5 2
797*	4-pin Base (for 706 Coils)	6 6
765*	4-pin Former, plain (as used on 706 Coils)	4 1
765*	4-pin Former, threaded (as used on 706 Coils)	4 1
721*	2-pin Coil Former	4 1
722*	2-pin Coil Base	4 1
647*	Polystyrene Former	5 1
984*	6-pin Base	10 1
1089*	Frequentist Former	13 0
1091*	Frequentist Sub-Base	1 0 2
1092*	Frequentist Base	16 11

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## R.F. CHOKES

777	Choke, 2.5 millihenries induct.	6 11
778	Choke, 1.25 "	6 0
1019	Choke, 1.25 "	6 0
1011	Choke, 5.6 millihenries "	3 8
1022	Choke, 1.5 millihenries "	7 5
1066	Choke, 13 "	14 0

Plus 12 1/2% Sales Tax

## INSULATORS

564*	Red Moulded Insulator	3 6
565*	Black Moulded Insulator	3 6
695	Lead-Through Insulator	13 9
794	Lead-Through Insulator	2 1
916	Stand-Off Insulator	3 2
946*	Aerial Lead-In Insulator	7 11
966	Pyrex Insulator	3 2
1618*	Ceramic Lead-Through Insul.	5 10
1619	Miniature Stand-Off Insulator	1 3

## L.F. AND B.F.O. TRANSFORMERS

728*	L.F. Transformer, 10 Mc.	1 1
851	L.F. Transformer, 455 Kc.	16 8
852	B.F.O. Unit, 455 Kc.	14 8
853	L.F. Transformer, 5.2 Mc.	16 8
854	Discriminator Transformer, 5.2 Mc.	18 10
855	B.F.O. Unit, 5.2 Mc.	14 8
856	L.F. Transformer, 10.7 Mc.	16 8
857	Discriminator Transformer, 10.7 Mc.	18 11

## COUPLERS, SHAFTS AND BRACKETS

50	Flexible Coupler, large	5 8
529	Flexible Coupler, medium	5 1
530	Flexible Coupler, small	5 1
530*	Flexible Driving Shaft	13 11
706*	Metal Bracket	2 11
1007*	Adjustable Insulated Bracket	5 1
1080*	Extension Control Outfit	7 2

## MISCELLANEOUS

562	Small Valve Cap (9 mm.)	2 9
563	Large Valve Cap (9/16 in.)	2 9

## XYL CORNER

BY PHYL MONCUR

Would you like to meet Lesley Fullagar, our XYL for this month? Then allow me to introduce her to you.

Lesley is the XYL of Dr. J. Fullagar (2AJY) and lives in a small town north of Sydney. She has four young children, manages to carry on a part-time professional career and, on top of that, does the QSLs. Here is her own story as she told it to me. She writes:

Sometimes I begin to wonder if I haven't been just a little bit busy doing my Amateur Radio business. At the time I married my husband he was not interested in Amateur Radio except for occasionally listening in on the band, although he had been interested in Radio and had built his own receivers since he was a young chap of about 11. At the time we married, he loved playing records on his home-built amplifier, of noble performance but hair-raising appearance.

In the first few years of our marriage constant amplifier-modification went on, so that I was lucky if I could play myself records for three weeks at a stretch. Then for many weeks (the length of time being due to the small doses of spare time that could be allocated to a hobby after the regular hours of occupation—"It's hard when work gets to interfere with your hobby!" being his motto)—the machine was dismembered, being usually spread over the dining-room table and needing to be pushed back to clear a sufficient corner to eat breakfast. Anyhow, knowing of his mad interest in advance, I did at least feel that I had walked into that lot with my eyes open.

At Amateur Radio got a toe-hold after a chance meeting with an Amateur in Rockhampton (4EC). Acquaintance quickly ripened to friendship and led, of course, first to invitations to visit Easy Chair and later to more insidious propaganda about the advantages and interest in having one's own licence and transmitter. Cunningly, the XYL's side of the picture was not painted, and all unsuspecting objections. I even went so far as to study the pre-requisite morse code with my OM, but his bitter complaints about my inability to receive (to his inferior sending) and my demands for repeats, which he said were holding him back in his advance, finally made me seem not worth the candle, so I left him to it.

"The licence finally came through almost simultaneously with the birth of third child—which happened on the same day. The day was to come home I was left languishing until the afternoon, for the morning (it was Saturday) just HAD to be spent hoisting one ultra-heavy 40 ft. hardwood antenna mast with the aid of numerous able-bodied Amateurs. I admit that I found it as fascinating as the OM at first, spending longer hours than I should listening in at night, was a little put out at finding wee son proudly referred to, over the air, as the 'harmonie,' whereas his sisters (beautiful children to their proud mother's eye) were dubbed 'sub-harmonics'!"

"After about 100 contacts had been made I could see the advantages to an Amateur of a good index of QSOs and of course was still sufficiently green on XYL to suggest that I should compile one for him and keep it up to date. I also used to make out the QSLs—except for the last line with its personal comments and 'Very 13' of course. I kept this up nobly and used to choose the shack for sewing and such activities so that I could listen in and sometimes also have my little say until entering hospital for fourth child—second son. The index was up-to-date when I went in, two years ago now, but I fear had a shock and an antenna QSLs have been left to the OM since, though I still haven't learnt my lesson and am hoping to get enough time in the future for the mammoth task of catching up."

"We had three temporary abodes until we at last moved into our own home, when of course settling-in kept us busy (not too busy though, for the OM to set up an antenna and a pretty well first thing and to maintain contact with Rockhampton and start off again collecting countries for DX C.G.I.). On the way we moved south the first things installed in the car were portable rig and receiver, AFTER them, space for family and luggage was considered. At each of our temporary dwellings, said portable was set up almost before anything else was done.

"When a new Auxiliary for their local hospital started up I went along (my OM is a medic and uses the hospital of course for his patients).

(Continued on Page 17)

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# FIFTY-SIX MEGACYCLES AND ABOVE

Five metre enthusiasts should watch for VK1JL on Macquarie Island, his frequency is 56.640 Mc. Further information regarding skeds will be advertised over VK3WI from time to time.

## VICTORIA

We had another wonderful turn-up to the last Fox Hunt with five cars competing and over thirty enthusiasts counting Amateurs, navigators, second ops. and XYLA. The hunt traversed Richmond, Stadel Park, around the Boulevard and then over to Ascot Vale and Maribyrnong. The fox found some really horrible spots to hide in, but the hounds ferreted him out every time. Everyone had a lot of fun as usual and we were very pleased to have some new starters. One was John SZCJ, who did very well in spite of a broken feed line, and another new one was Assoc. Bert Stebbings who was second op. for JANS. Bert enjoyed the hunt so much he went home full of ideas to build up some gear of his own for the next hunt. The winner for the evening was Laurie 3ALY and there was a dead heat for second place between the two Rays (3KID and Ray) and two Davids (3J and 3ZAT). The final location was held at the home of Eric 3ADU and Ruth Manson, in Essendon, where the group finished off the evening with a supper together and the usual final rag-chew. Thanks for opening your home to us Eric and Ruth.

We all missed our control station, Bob 3OJ, who was not able to be there to help staying hounds back on the track as he has had to undergo two operations within a couple of weeks of the last operation. Bob has been run this year. Bob has had a pretty tough run this year, but we all wish you a speedy recovery Bob and hope you'll soon be back with us all again.

Members of the V.H.I. Group spent a most enjoyable evening at the last V.H.I. meeting. The lecturer was Mr. Dave Callow, a radio physicist, and holder of the 3CZCQ with the award of the A.N.A.R.E. on Macquarie Island in 1955, and he gave an illustrated talk covering his stay on the island. He showed a very excellent and most interesting collection of coloured slides illustrating life on the island, both of the men and the animal and bird life there. His shot of the scenery, the penguins and other very fascinating things about life on the island was also very interesting. Dave has a very ready wit and his amusing little stories brought forth many laughs. He also equipped the museum everybody greatly was his feelings in regard to Amateur Radio. It was wonderful, he said, to be able to chat with somebody over the air for a change and not know word for word what the other fellow was going to talk about. He was sporting a very fine beard, everyone on the island always has a beard, but he mentioned one decided disadvantage with the beard. When it snows, he said, your beard gets clogged up with snow which can turn to ice, and it's always very difficult trying to thaw your beard out. All enjoyed his lecture very much and applauded warmly at the conclusion.

Conditions are apparently improving greatly as it has been reported that JAs have been heard breaking through on 6 metres. Michael SZCS, Malcolm 3ZCL and Alf 3IE have all built their gear and are all situated to work. Malcolm is also experimenting on micro-waves. Butter-fingers, David 3ZAG, has further troubles. He saved up and bought himself a car, and then went and dropped it and broke it before he had even plugged it in! John 3ZAI and Ray 3KD are both busy working on t.v. home-brew.

For those interested in catching up on a little practice in c.w., there is a relay of the slow Morse practice transmissions every Sunday evening at 7.30 p.m. on the 2 mhz band on 140 Mc. for the special benefit of v.h.f. listeners. 3YB, 3ABA and 3FP take it in turns to handle this and they are all situated to work east of Melbourne—Phyl Muncer.

## SOUTH AUSTRALIA

V.h.f. work in this State has not come to a stop, but lack of notes has meant that activity from here may have given that impression. An endeavour will be made to pick up the threads and let you know of the movements, plans and future intentions of the v.h.f. boys as we go along, which task will be aided by me hearing from some of you, and thus get the ball really rolling again.

Starting from the North we have a flock of Z calls at Woomera, beam them this way chaps, you will be surprised how they can get through. Ern 3EN at Pirie, has 100 watts on 2 mhz. P. 6146s we think, and a xtal front-end for his 144s that has to be seen to be believed. A magnificent job, brass chassis, and a couple of airflows popping out of it that would be the envy of anyone. It is capable of tuning 5, 2 and 1 mhz and has been used on a successful contact on 1 mhz between he and Reg 5QR. Much planning and patience was displayed on that outstanding contact, but they stuck to it and finally made the grade. Ern used a long-lead yagi with so many directors on it that the boys had to be counted, you just couldn't look at it and say 8 or 8 el. Anyway, congrats Ern and Reg. Bob 3RI is patiently awaiting a break-through to him on 2 mhz and anxious to contact anyone near him to help make the grade. Gawler has two types on 2 mhz and shortly to be added to by a Z call; 8 mhz also coming up. Les EAX is the stalwart who never really deserts these frequencies, and manages to keep on the air to matter what modifications he attempts to the tx. He will be restoring his 12 el. co-linear soon so watch out.

The writer has at long last put the 5 over 5 on the air, and about 40 ft. up! and hopes to have it in use before this is read. P. 6146s 10W, input will feed it, and under that 5 over 5 is a 5 mhz and 5 mhz xtal. It will be up by a similar outfit soon. 2 mhz signals heard here in recent times, include Bill SZAW who is on most Sunday nights, Reg 5QR who never fails to meet on 8 metres, and also one who never fails to bob up with something new. Neil SZAM puts in a fine sig. So also does GLT, SZAE, SZAF, 5H, 5RC and BMT.

Keith 5MT did some good work and tests with me on mobile 2 mhz some time back when he worked Hughie 5BC from Mt. Lofty whilst mobile. Keith has been working 2 mhz lately. The South East boys seem to be getting steamed up these days. Claude 5CH has worked Dave SZAM at Penola, which of course has aroused some interest. Neil 5CL also on 2 mhz these days.

3AGZ (Broken Hill) will shortly be operating on 2 mhz over Adelaide. He has been working 2 mhz for some time. He will be looking for contacts and may meet the procedure of last year in calling at regular intervals, but with the carrier on all the time. More of the boys when all the time. Dave 2AMN can be contacted for information and progress in the meantime.—SEF.

## WESTERN AUSTRALIA

Sept. 29 saw another Fox Hunt under way, King's Park once again the starting point, with Murray SZAM and Tom 6ZAF being the foxes. The roll up must have been close to the date with 13 cars taking part. At 8.15 p.m. sharp, the signal came on and the cars got under way, screaming their way through Perth. It's surprising the way the 3 and 4 el. beams attracted the attention of passers by. Syd 6B3 was the winner and it was good to see him break a run of cuts, nice work. A Rolo 6BO was very close again—handicapped by lack of phones for his diode detector, he'd lent them to Bob 6BE who's Don 6ZAV and driver Roy did better than the last time. Thanks to a generator power supply, instead of a vibrator. "Never seen so many dead-end roads in them 'thar hills." Supper was purchased at Mullagay QTH at Kalamunda. Thanks Murray, what a view you have from the house!

I hope there is a bit more activity on the bands during the coming months.—EAV.

## YL CORNER

(Continued from Page 16)

and as a new arrival, was astonished to find myself elected Secretary. Then later I was offered a temporary job (I too am professionally qualified) and since then others have followed with only a week or so in between. "I am not able to listen in as consistently as I used to, as unfortunately the shack here is a tiny room, just large enough for rig, receiver, the OM and the inevitable accompaniment of weird junk. However, on occasions when I squeeze in and stand carefully (so as not to knock anything over) behind the OM, I find I've found it as fascinating as ever and although it wouldn't do to admit it to the OM, I do regret the fact that the room is too small for regular XYI participation. I am, however, Lesley has promised to send in further contributions from time to time. Now what about all the rest of my readers, I must hear from you one surely. What about you sending in a contribution? We'd enjoy hearing your slant on "Life with Amateur Radio."—P.M.

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" 6X5 .....	12/6 ea.		
" 6U7 .....	7/11 ea.		
" 6Y6 .....	12/6 ea.		
" 6A6 .....	10/6 ea.		
" 6SF5 .....	7/6 ea.		
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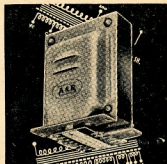
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"	1766	125	"	285-C.T.-285
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"	1768	"	"	325-C.T.-325
"	1769	"	"	350-C.T.-350
"	1770	"	"	385-C.T.-385
"	1771	150	"	285-C.T.-285
"	1772	"	"	325-C.T.-325
"	1773	"	"	350-C.T.-350
"	1774*	"	"	350-C.T.-350
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Type	1776	175 Ma. D.C.	Sec. Volts:	285-C.T.-285
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"	1779	"	"	385-C.T.-385
"	1780	200	"	350-C.T.-350
"	1781	"	"	400-C.T.-400
"	1782	"	"	450-C.T.-450

Type	1400	250 Ma. D.C.	Sec. Volts:	565, 500, 425
				each side C.T.

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## SOUTH AUSTRALIA

Our September meeting was a gem! The lecturer being Ross Trehanne, 51Q, who extended himself, giving us the real low-down on radio's newest and smallest development—semi-conductors or transistors to you. Many thanks Ross, your attention to detail, the diagrams, slides, and working exhibits provided many highlights, which I typed and mailed to you. I was much enjoyed by all. Ross was ably supported by Ted STP. The impact these little wonders are likely to make on our hobby is thus amply demonstrated. All present were privileged to hear the outstanding discourse of the series.

A packed house enjoys this experience and includes: Maurice C. Dorman, T. Keln, J. Such, Maurice Phillips (SZU), A. Richmond, J. R. Watts, C. Greaves (G3QTX), D. B. Colbach, J. A. Evans, Rev. W. H. Smith (G4LAF), and J. Munro (LA6CF). Our Norwegian friend, who is MM at present, was a scorer as a listener in VK-LZL contest so received his certificate personally from President John.

Whilst it was nice to see Reg 3M2, we regret the circumstances of his visit and hope all is well by the time this is read. Ron 5FY and Burnie 5QW, both from SWC, deserve a mention in this issue for their interest in the club for a few days. Sitting near the back of the hall was a member in a blue uniform, we will call him VK3Z (S.A.P.) who kept a friendly eye on our behaviour, or perhaps he was watching Doc 5MD who was handling the slides; could be, for the hall lights were dimmed.

General business confirmed the assistance of H. Bruner, M. Wacht (5QW), and R. S. McKensie (SKN) to full membership, and the following new Associates: J. L. Watts, M. J. Bruner, M. P. Bellman, A. A. Watts, M. J. Taylor, and F. L. Choate. Congrats, chaps, hope you enjoy your membership with us.

Associate members are reminded of their status in that they are entitled to the privileges of membership, which includes attending meetings and so on. Don't be shy, come along and enjoy the fellowship which benefits us all. Remember, if you are shy and he will make you very welcome. If you don't know him look for a "brood" shouldered with a bundle of "application" papers permanently in his hand, he will take you in hand. Any associates who are new to the club should make application to the Secretary for same, just write in—no forms to fill for this—and give the details, call sign, etc., and Brian will be the best.

By the time you read this it is hoped the classes will have started, the delay in doing so being the numbers required not forthcoming previously. It is hoped the Division will be running the class which must be made up by the course fees, so if you are a possible starter, be in to get the class under way.

There seems to be a rush for antenna towers these days. John 8KX has just finished his, Gordon SXU has one to go up and a little bird tells me SGM has just finished his. Looks like DX is going to get a lot of towers. The new one at Mt. Gambier is a controlled model aircraft, fill up her tanks Wal and guide it this way—not a bad idea for a new method of conveying QSL cards, anyway.

## RIVER DISTRICTS

A letter to hand from Fred 5MA tells of work undertaken by the Riverbank and Riverbank and environs. The river floods there caused such damage that it was feared normal communication would suffer, so they entered into the genuine emergency organisation and on obtaining a permit from P.M.G., set up gear to operate on the police frequency.

Hughie 5BC, Bob Pearce, and "Hobby" 5RE were involved in setting up gear on the 240 and getting mobile gear going. Lance 5XL loaned a power supply. These fellows pooled their gear and had an emergency net operative in the local area. It is reported that the undertaking had the blessing of the Commissioner of Police, P.M.G. Department, and the local Police, and the R.T.T. and Army emergency nets also set up and in use.

## SOUTH EASTERN AREA

The last meeting at Mount Gambier found Tom 5TW missing—batching it is believed—so easy on the tin opener. The meeting was not on much these days; he has been on v.h.f.

it is understood. Col 5CF also that way inclined. Stewart 5MS hasn't cleared out all the bugs from his tx yet, but will get around to it soon. Speed it up Stewart, even for you it is thought the time could be tempting.

Maybe it is the weather down there that has caused a lapse in activity—more air-conditioned shacks pulled in because of the heat. It's done little but listening. The sailplane really must be interesting. Get the beam up again ER and be in it, and make up the DX CC number. We should hear him on the d.c. bands soon, keep it up Leo.

## WESTERN AUSTRALIA

Owing to 5AG's absence from the city, the weekly broadcast was taken, during September, by 6LU and 6RU. Thanks Lou and Jim.

At the last Divisional meeting films were shown, including some technical ones and a very interesting record in colour of 6MK's recent trip to G land. Parts showing views of the Alps were particularly good.

Max 6K4 has been staying with his brother-in-law (6RA) and has been doing the rounds of Perth shacks. 2AYE has also been seen in the West. Both work /MM from the ship when in VK6 waters.

The Contest Committee is very pleased with results of the R.D. Contest. Seven logs were submitted, including one from 6K4. A record score and also there were a record number of participants. 40 mx scramble results not yet to hand, at the time of writing there was a good crowd and conditions were good.

The bands are getting lively now, 40 and 80 mx producing DX as well as the higher frequencies. Ten mx is still showing more frequent DX openings, Q55 and G5 having been worked from 6BE. Quite a bit of c.w. on this band, too. Reverting to 40 and 80 mx, Len 6LG has worked two Z55 of phone on the former and one on the latter band, using his half wave 160 m antenna.

6LU has invested in a c.r.o. and has been making good use of it, resulting in a very busy modulated signal on 15 mx TX was heard here putting out a very f.b. 57 phone signal whilst he was in the Albany district working portable. 6EJ has been having a bit of modulator trouble and is building a new one. Engine trouble too has kept him quiet lately, but he hopes to get things fixed up soon.

A recent listen around the 15 mx band showed the long path opening up during the afternoon. It was reported by ZLIC that WPEO heard 6EJ peaking 8S during a series of skeds with WTKB on 80 mx c.w. a few weeks ago.

## TASMANIA

### NORTHERN ZONE

Owing to the absence of Ken 7LX who has gone back to VK4, the absence of Northerners north have been lacking, however I will endeavour to try and keep them going. Hope the weather is good Ken and the company going. I have heard that his power main fuses blew out, and investigating the sudden cause found that he had done his own wiring. However, I have heard that his power main fuses blew out, and investigating the sudden cause found that he had done his own wiring. However, I have heard that his power main fuses blew out, and investigating the sudden cause found that he had done his own wiring.

Had our old friend, Chris. Cullinan, over from VK3 on a spot of leave. During his stay he gave a very fine lecture on t.v. and what have you most enjoyable Chris and it was good to meet up with you again. Have two new members up in the North: Z2CC (George Cranby) is at Bell Bay with the A.C. and TMC from Launceston. Both to be hoped to hear you on the air soon George and Bill. Things are too quiet with 7ZAW. What's cooking in Victoria? We're all waiting to hear so what about a signal or two? Our new associate, Charles Spiegel, is still studying hard so we will hear something soon we hope—H.S.

### NORTH WESTERN ZONE

It's good to know that our associates in this zone are receiving the necessary encouragement and help from the club members. A special effort will be made in this column to publicise their doings. After all, we hope they will assist our own. As a result, we have just started a course with Marconi School for his A.O.C.P. Good luck Max. How about that g.d.e. Max? So accurate you could use it for free radio after the calibrating effort. Jim 7JO's place. Congrats to David Sloan on

his engagement some weeks ago. Would this be in order? I wonder? Another associate, John Lee, very busy on a rx and a freq. meter. I suggest you build your test gear for John, otherwise you'll be in it properly.

George TXL very industrious down the low end of the spectrum, with the construction of a tape recorder. I can't remember what the fly-wheel was made of, but the base in the motor was full of, but what a lovely piece of white velvet or something it was wrapped in at the office. How good is George? He has had a problem with Ted 7EJ's job on the air again yet since R.D. Contest, when he and George TXL borrowed Jim's 7JO portable for a few contacts. Ted says the trouble is that there is a section of 600 ohm feed line shy between the antenna and the rig.

A visitor from Hobart recently, Edgar TRY, on holidays, called into see Jim 7JO at Devonport. Nick used to run a beeper in the old days—about 1w. Probably gone to high power now, say 2w. Long time to see the Nick! Related congrats to Bob Wilson on his limited ticket obtained recently. How about a V.h.f. Group in Burnie 6B? Leon 6P at Queenstown wishes to retain his association with the North Western Group. Pleased to have you Leon. Minibeams and cubical quads seem to be all the rage now, Leon has had some success. The new student, Jim 7JO, has cubical quads in the attic. Whoa! I mean under construction in the attic. Sorry.

Ellis TWA active on 15 mx. Had a few calls lined up a few week-ends ago, but liking variety, went after an odd OH or two that happened. Our Secretary, Sid 7EY, had a fine signal during a Sunday morning hook-up, heard early in October. Keep it going, Sid, or they will grow again. The Ennu Bay Railway Company has obtained the services of Chas 7CF. When last heard, Chas was considering a portable in the railcar.

## HAMADS

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